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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/025,688 | 12/26/2001 | Toru Kozu | 217778US2S | 6043 |

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ALEXANDRIA, VA 22314

EXAMINER

CHANG, JOSEPH

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2817 | |

DATE MAILED: 05/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|--------------------------|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/025,688 | KOZU, TORU |
| | Examiner Joseph Chang | Art Unit 2817 |

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-7 and 11 is/are rejected.
- 7) Claim(s) 8-10 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 26 December 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Claim Objections

Claim 1 is objected to because of the following informalities: the recitation "gate" in line 7 should have been --base-- for consistency of BJT terminology. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Sugano JP407221545A.

Sugano discloses in figure 10 an oscillation circuit comprising a first transistor (Tr1) including a base inputted an oscillation signal (a), an emitter connected to a ground potential (via R4, as applicant shows in R36 in fig 2), and a collector (see Tr1); a second transistor (Tr2) including a collector connected to a power supply potential (Vb), a base and an emitter (see Tr2); and a load (strip line L) having one end (bottom portion L) connected to the collector of the first transistor (Tr1 collector), and another end (top portion L) connected to the emitter of the second transistor (Tr2 emitter), the load (L) causing a voltage drop proportional to the power supply potential (It is inherent that any impedance element causes to voltage drop in series connection), wherein the voltage drop caused by the load (L) reduces dependency of a base-collector voltage of the first

transistor (Tr1) upon the power supply potential (it is inherent that the parasitic capacitance exists between base and collector of Tr1, which is dependent to the base-collector voltage of the Tr1, and the base-collector voltage of the Tr1 is based on the voltage drop L).

Regarding Claim 2, the voltage drop causing negative feedback is inherent in order to maintain the oscillation.

Regarding Claims 3, Voltage across Resister R2 of voltage divider (R1, R2, R3) is the same voltage drop in a current path extending from the base of the second transistor to the base of the first transistor via the load (L).

Regarding Claim 4, Voltage across L is substantially equal to the voltage across R2 because Vbe of Tr1 and Vbc of Tr2 are negligible because of intrinsic property of transistor.

Regarding Claim 5, a resonance part (a) produce constant oscillation frequency and R2 corresponds "a resistance element provided between the bases of the first and second transistors (Q1 and Q2)"

Regarding Claim 7, a capacitance element corresponds to C3.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pham US 5245298 in view of Fong US 6147559.

Pham discloses in figure 1 an oscillator comprising an oscillation stage (22,24) and a cascode oscillation amplifier output stage as shown in the admitted prior art in this instant application. However, Pham does not disclose a resistor between emitter of Transistor 50 and collector of Transistor 20 in the cascode oscillation amplifier output stage.

Fong discloses in figure 2 a cascode amplifier having a resistor between emitter of Transistor Q2 and collector of Transistor Q1 and further teaches that the resistor and capacitor Cf forms a shunt-feedback network to provide for improving noise figure and linearity of electronic circuits.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the amplifier of Fong, for the oscillation amplifier output stage for the purpose of obtaining a good noise figure and linearity of electronic circuits as taught by Fong. It is noted that this modified oscillator of Pham in view of Fong obviously performs as recited in the claim - the load (Rf) causing a voltage drop proportional to the power supply potential (It is inherent that any impedance element causes to voltage drop in series connection), wherein the voltage drop caused by the load (Rf) reduces dependency of a base-collector voltage of the first transistor (Q1) upon the power supply potential VCC (it is inherent that the parasitic capacitance

C_f exists between base and collector of Q1, which depends on the base-collector voltage of Q1, and the base-collector voltage of Q1 depends on the voltage drop R_f).

Regarding Claim 2, the voltage drop causing negative feedback is an obvious consequence of the modified oscillator of Pham in order to produce oscillation.

Regarding Claims 3, Voltage across Resister 56 of voltage divider (R54, R56, R28) is the same voltage drop in a current path extending from the base of the second transistor to the base of the first transistor via the load (R_f).

Regarding Claim 4, Voltage across R_f is substantially equal to the voltage across R56 because V_{be} of Q2 and V_{bc} of Q1 are negligible because of intrinsic property of transistor.

Regarding Claim 5, LC (22,24) resonant circuit produce constant oscillation frequency and R56 corresponds "a resistance element provided between the bases of the first and second transistors (Q1 and Q2)"

Regarding Claim 6, "the load is a resistance element" corresponds to resistor R_f.

Allowable Subject Matter

Claims 8-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: None of the cited references discloses nor suggests the claimed invention including a physical structure limitation, as set forth in the claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Barclay discloses a VCO using cascode amplifier configuration.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Chang whose telephone number is (703) 308-4800. The examiner can normally be reached on Mon-Thur 0630-1700.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (703) 308-4909. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7722 for After Final communications.

In addition, the official TC2800 RightFAX numbers are:

TC2800 Official Before-Final RightFAX - (703) 872-9318

TC2800 Official After-Final RightFAX - (703) 872-9319

TC2800 Customer Service RightFAX - (703) 872-9317

These RightFAX numbers provide the fax sender with an auto-reply fax verifying receipt of their fax by the USPTO.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JC
May 7, 2003



Robert Pascal
Supervisory Patent Examiner
Technology C 30723

LIST OF RELATED CASES

| <u>Docket Number</u> | <u>Serial or Patent No.</u> | <u>Filing or Issue Date</u> | <u>Status or Patentee</u> |
|----------------------|-----------------------------|-----------------------------|---------------------------|
| <i>le</i> 210576US2S | 09/892,447 | 06/28/01 | PENDING |

Josephine Murray 5/7/03

GJM/ae

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